EXHIBIT 1

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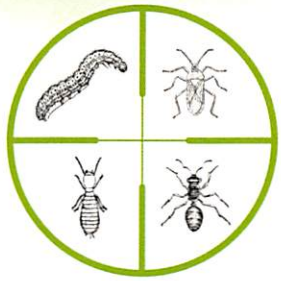

Defendant's Expert Disclosure

Deborah Galoski, Plaintiff

vs.

Stanley Black & Decker, Inc., et al., Defendents

Case No. 1:14-cv-00553

Prepared for

Barnes & Thornburg LLP
One North Wacker Drive
Suite 4400
Chicago, IL 60606-2833

Prepared by

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January 12, 2017

Defendant's Expert Disclosure

PURPOSE

This document was prepared to evaluate the research reports that Applica Consumer Products, Inc. used to support the claims made on the packaging of its ultrasonic product, Black & Decker Electronic Pest Repeller, Model EW 406-5P. The Disclosure includes a critique of Plaintiff's Expert Report prepared by Roger E. Gold, Ph.D. in the Galoski v. Applica (Case No. 1:14-cv-00553) matter, dated November 22, 2016 and Dr. Gold's deposition in this matter, taken on December 28, 2016. In addition, it provides an assessment of Plaintiff's compliance with the Use and Care Book's instructions that were included in the device packaging.

QUALIFICATIONS

Qualifications for Paul W. Borth are as follows:

- Board Certified Entomologist – License #B1799
- Member Entomological Society of America – Member No. 00878, since 1979
- Ph.D. Entomology, University of Arizona, Tucson, AZ, 1987
- M.S. Entomology, University of Maryland, College Park, MD, 1981
- B.A. Education, Concordia Teachers College, River Forest, IL 1975
- 27+ years with Dow AgroSciences in various Research & Development roles focused on crop protection and urban pest management
- 3 years with the University of Arizona's Department of Entomology, Cooperative Extension Service faculty, as Integrated Pest Management Specialist
- CV attached

NUMBERED LIST OF REFERENCES

The following reference materials were used in preparing this report:

1.	Victor Sonic Pest Chaser Repeller Efficacy Study Using Wild Norway Rats (*Rattus norvegius*), Study Number N11008;
2.	Ultrasound and Arthropod Pest Control: Hearing is Believing;
3.	Response of Several Arthropod Species to Three Ultrasonic Pest Repellers from Weitech, Inc.;
4.	Correlation Report between Black & Decker Ultrasonic Pest Repellers and Weitech Ultrasonic Pest Repellers;

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5.	USDA ARS Grain marketing and Production Research Center Research on Weitech Ultrasound Units (Test Species: Confused Flour Beetles);
6.	USDA ARS Grain marketing and Production Research Center Research on Weitech Ultrasound Units (Test Species: Indianmeal Moth);
7.	USDA ARS Grain marketing and Production Research Center Research on Weitech Ultrasound Units (Test Species: Red Flour Beetles);
8.	USDA ARS Grain Marketing and Production Research Center Research on Weitech Ultrasound Units (Test Species: Rice Weevil);
9.	USDA ARS Grain Marketing and Production Research Center Research on Weitech Ultrasound Units (Test Species: Sawtoothed Grain Beetle);
10.	Response of Ants to Transonic 100 Ultrasonic Device Interim, Progress Report dated September 11, 2000
11.	Response of Ants to CIX 0600 Ultrasonic Device, Final Report dated September 11, 2000
12.	Field Study on the Response of Flies to Three Ultrasonic Devices for Weitech, Inc., Final Report dated October 6, 2000
13.	Ultrasound affects spermatophore transfer, larval numbers and larval weight of *Plodia interpunctella*, Final Report dated July 1, 2001
14.	Response of House Crickets, *Acheta domestica* to Ultrasound, Final Report dated July 1, 2001
15.	Responses of German Cockroaches to Weitech's Ultrasound Emitting Devices Designed to Repel Pests, Final Report dated July 1, 2001
16.	Lack of Response of three ant species (Hymenoptera: Formicidae) to the ultrasound emitted from three commercialized ultrasonic devices, Final Report dated July 1, 2001
17.	Evaluation of Electronic Ultrasound Devices as Cat Flea Repeller, dated June 1, 2002
18.	Response of imperil scorpion, *Pandinus imperator*, to ultrasound emitted from Cix 0600, dated June 1, 2002
19.	Response of imperil scorpion, *Pandinus imperator*, to ultrasound emitted from Transonic 800 dated June 1, 2002
20.	Field study on the Response of Yellow Jackets, *Vespula maculifrons* (Buysson) to Ultrasound Emitted from Transonic Cix 0600, Final Report dated June 1, 2002
21.	Field study on the Response of Yellow Jackets, *Vespula maculifrons* (Buysson) to ultrasound Emitted from Transonic 800, Final Report dated June 1, 2002
22.	Field study on the Response of Yellow Jackets, *Vespula maculifrons* (Buysson) to ultrasound Emitted from Transonic 100, Final Report dated June 1, 2002
23.	Responses of the Cat Flea to Three Weitech's Ultrasonic Devices Designed to Repel Pests, Final Report dated June 1, 2002
24.	Effects of Ultrasound on Indanmeal moth reproduction
25.	Black & Decker Ultrasonic Pest Repeller Efficacy Study Using Wild Norway Rats (*Rattus norvegicus*), study Number N11005
26.	Victor Sonic Pest Chaser Repellent Efficacy Study Using Wild Caught House Mice (*Mus musculus*), Study Number N11009
27.	Stipulated Protective Order (Case No. 1:14-CV-00553): Deborah Galoski (Plaintiff) vs. Stanley Black & Decker, Inc.
28.	Deposition of Deborah Galoski taken April 17, 2015 with exhibits
29.	Deposition of Leslie L. Campbell taken August 24, 2016 with exhibits

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30.	Deposition of Peter Meister taken September 27, 2016 with exhibits
31.	Deposition of Stuart Slugh taken September 27, 2016 with exhibits
32.	Deposition of Aurelio Reyes taken September 28, 2016 with exhibits
33.	The Effects of Noise on Man. Karl Kryter, New York, Academic Press, 1970 (pp 536-543, 591-625)
34.	Investigation of Efficacy and Enforcement Activities Relating to Electromagnetic Pest Control Devices, October 1980, EPA 340/02-80-00
35.	Federal Trade Commission news release "FTC Warns Manufacturers and Retailers of Ultrasonic Pest-control Devices", May 3, 2001
*36.	~~Ballard, J.B. & R.E. Gold. 1982. Ultrasonics: No effect on cockroach behavior. Pest Control 50 (6); 24 & 26~~
37.	Ballard, J.B. & R. E. Gold. 1983. The response of male German cockroaches to sonic and ultrasonic sound. Journal of Kansas Entomological Society 56:93-96
38.	Ballard, J.B., R. E. Gold & T.N. Decker. 1984. Response of German cockroaches (Orthoptera:Blattellidae) populations to a frequency sweeping ultrasound-emitting device. Journal of Economic Entomology 77:976-979. ???Also known as "Ultrasound-Emitting Device" JEE 77: 976-979 (1984)???
39.	Decker, T.N., T.A. Jones & R.E. Gold. 1989. Auditory thresholds in the American cockroach (Orthoptera:Blatellidae): Estimates using single-unit and compound-action potential recordings. Journal of Economic Entomology 82:687-691
40.	Gold, R.E., H.N. Howell, Jr. and T.N. Decker. 1993. Evaluation of the Electracat pest control devices against German cockroaches (Dictyoptera:Blatellidae) populations in laboratory and field trials. Journal of Economic Entomology (manuscript)
41.	Gold, R.E., T.N. Decker & A.D. Vance. 1984. Acoustical characterization and efficacy evaluation of ultrasonic pest control devices marketed for control of German cockroaches (Orthoptera:Blattellidae). Journal of Economic Entomology 77: 1507-1512
42.	Koehler, P.G., R.S. Patterson & R.J. Brenner. 1987. Efficacy of ultrasound for German cockroach (Orthoptera:Blattellidae) and Oriental rat flea (Siphonaptera:Pulicidae) control. Journal of Economic Entomology 79: 1027-1031
43.	Summerlin, Bill, Roger Gold, and Jerry Cook. 1995. Field Evaluation of Microwave Technology to Control Red Imported Fire Ants, *Solenopsis invicta* Buren. Abstract: Journal of Economic Entomology
44.	Gold, R.E., and H.N. Howell. 1990. Report on Electracat to Eagle Shield Industries (April 6, 1990)
45.	Ballard, J.B. and R. E. Gold. 1984. Laboratory and Field Evaluations of German Cockroach (Orthoptera:Blatellidae) Traps. J. Econ. Entomol. 77:661-665
46.	Koehler, P.G, Norman C. Lepla, and Richard S. Patterson. 1989. Circadian Rhythm of Cat Flea (Siphonaptera: Pulicidae) Locomotion Unaffected by Ultrasound. J. Econ. Entomol. 82(2): 516-518
47.	Reyes, Aurelio, Waiman Chung. Refresh Ultrasonic Pest Repeller. Product Specification 1/3/2008 Update, Number 1000000061 Rev. Q
48.	Black and Decker. 2003. Full Text of "Black & Decker Direct Plug-In Electronic Pest Repeller 100-700 Series. EPA Establishment No. 73563-CHN-001

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49.	Denker, John. 2003. "The" Scientific Method versus Real Science. https://www.av8n.com/physics/scientific-methods.htm
50.	Science Buddies. Steps of the Scientific Method. http://www.sciencebuddies.org/science-fair-projects/project_scientific_method.shtml
51.	Scientific Method. Encyclopaedia Brittannica. Encyclopaedia Brittannica Online. Encyclopaedia Brittannica Inc., 2016. Web. 13. Dec. 2016, https://www.britannica.com/science/scientific-method
52.	What type of insects are attracted to light? www.reference.com/science/type-insects-attracted-light-de427f983cbc27df#
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54.	Mallis, Arnold. 1982. Handbook of Pest Control, Sixth Edition
55.	Mallis, Arnold. 2011. Handbook of Pest Control, Tenth Edition
56.	Five photos of Plaintiff's Ultrasonic Pest Repellers
57.	Exemplars: Applica Ultrasonic Pest Repellers
58.	Amazon citation: https://www.amazon.com/dp/B000SPAMA0?tag=1newmodel-20
59.	Plaintiff's Expert Witness Report, dated November 22, 2016, author – Roger E. Gold, Ph.D.
60.	Deposition of Dr. Roger E. Gold taken December 28, 2016
61.	Statistical Procedures for Agricultural Research. 2nd ed. Gomez and Gomez. 1984.
62.	Physics of light and sound for kids. www.boogeylights.com/physics-of-light-and-sound-for-kids.html
63.	What is a decibel, and how is it measured? www.science.howstuffworks.com/question124.htm
64.	Bertone MA, Leong M, Bayless KM, Malow TLF, Dunn RR, Trautwein MD. (2016) Arthropods of the great indoors: characterizing diversity inside urban and suburban homes. PeerJ 4:e1582 https://doi.org/10.7717/peerj.1582

* Not reviewed for this report. Included as a placeholder to preserve numbering found in Plaintiff's Expert Witness Report, dated November 22, 2016

WEITECH AND/OR APPLICA FINDINGS

1. The Use and Care Book for Black & Decker Direct Plug-In Electronic Pest Repeller 100-700 Series (Ref. 28) includes these statements:
   - PLEASE READ AND SAVE THIS USE AND CARE BOOK. (upper case lettering as it appears in book)
   - Repels mice, cockroaches, spiders, and other pests
   - Results are based on independent laboratory tests.
   - Ultrasound loses its intensity as it travels and is absorbed by soft objects.
   - Ultrasound cannot reach nesting and feeding places behind walls, under floors or within cracks.
   - Multiple units may be necessary for larger rooms.
   - How to Use

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- Under optimal conditions, the 100-400 series units cover a medium-size room and the 500-700 series units cover a large room.
- 1. Plug unit into an unobstructed AC electrical wall outlet.
- 2. Operate the unit 24 hours a day, occasionally moving the unit to a different location as necessary.
- Note: For best results, place additional units in adjacent rooms and on each level of the dwelling, moving the unit to a different location as necessary. It may take up to 2 weeks to see results. Continue to use to keep pests from returning. Certain pests may adjust to ultrasound and return to their nesting or feeding areas, even in the presence of an ultrasound product.

- NEED HELP? (upper case lettering as it appears in book)
  - For service, repair or any questions regarding your appliance, call the appropriate "800" number on the cover of this book

2. Packaging text for ultrasonic pest repellers taken from Ref. 28 (Exhibit Galoski 7-A) includes:
   - DRIVES OUT
     - Mice
     - Cockroaches
     - Spiders
     - And other pests[†] ([†] Results are based on independent laboratory tests.)
3. Ref. 28, Exhibit Galoski No. 9 is the Use and Care Book for the units in question as the Plaintiff's Device is Model EW406-5P (Exhibit Galoski No. 7-B)
4. According to the Product Specification Sheet (Ref. 47), Plaintiff's Device Model # EW406-5P contained 5 units. One (1) of Model EW411 plus two (2) of Model EW421 plus two (2) of Model EP610. Reference Model 0540 was the reference for New Models EW411 and EW421. Reference Model 0185 was the reference for New Model EP610. The Correlation Report (Ref. 4) shows that the measured electrical specifications (Electrical Magnitude (V) and Frequency Peak (kHz) of the New Models were closely correlated electrically to the Reference Models, as specified in the Product Specification Sheet.
5. Ref. 2 and Ref. 3 were reviewed and considered as additional information, but determined to not have the same weight or scientific value as those efficacy reports that were dated, identified with Investigator, and contained formal Results & Conclusions.
6. From Reference 4, "Correlation Report…"
   - Electrical correlation testing was done between four Weitech Models (Weitech 500B, Weitech CIX0600, Weitech Transonic 800, Weitech Transonic 100), i.e., the "standards", and Applica's newly branded Black & Decker models (among them B&D EW411, B&D EW421, and B&D EP610). The ultrasonic sound sweeping frequency variable, as measured by Frequency Peak range (kHz), was the variable of interest. The four standards were used in five independent "Efficacy Reports" and referenced in the Correlation Report.
     i. B&D Models EW411, EW421, EP610 with Frequency Peaks of 26-45 kHz, 27-48 kHz, and 26-44 kHz, respectively, were shown to be closely correlated electrically to the Weitech 500 B model which had a Working Frequency Output of 26-45 (kHz).

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Weitech 500 B was tested by BioCenotics for efficacy (repellency) against Wild House Mice (Efficacy Report #WEI-98260).

ii. B&D Models EW411, EW421, EP610 with Frequency Peaks of 26-45 kHz, 27-48 kHz, and 26-44 kHz, respectively, were shown to be closely correlated electrically to the Weitech CIX0600 model which had a Working Frequency Output of 25-40 (kHz). Weitech Transonic Cix Heavy-Duty Commercial (CIX0600) was tested by BioCenotics for efficacy (repellency) against Wild Norway Rats (Efficacy Report #WEI-98009).

iii. B&D Models EW411, EW421, EP610 with Frequency Peaks of 26-45 kHz, 27-48 kHz, and 26-44 kHz, respectively, were shown to be closely correlated electrically to the Weitech CIX0600 model having a Working Frequency Output of 26-45 (kHz). Weitech CIX0600 was tested by Huang for efficacy (repellency) against German Cockroaches (Efficacy Report #Huang 6-02).

iv. B&D Models EW411, EW421, EP610 with Frequency Peaks of 26-45 kHz, 27-48 kHz, and 26-44 kHz, respectively, were shown to be closely correlated electrically to the Weitech Transonic 800 model having a Working Frequency Output of 27-42 (kHz). Weitech Transonic 800 was tested by Huang for efficacy (repellency) against Greenhouse Spiders (Efficacy Report #Huang 6-02).

v. B&D Models EW411, EW421, EP610 with Frequency Peaks of 26-45 kHz, 27-48 kHz, and 26-44 kHz, respectively, were shown to be closely correlated electrically to the Weitech Transonic 100 model having a Working Frequency Output of 27-35 (kHz). Weitech Transonic 100 was tested by Huang for efficacy (repellency) against Long Bodied Cellar Spiders (Efficacy Report #Huang 6-02).

7. Efficacy tests for mice:
   - Efficacy (repellency) verified through controlled experimentation for Weitech Transonic 500B (WEI-98260 report (included in Ref. 4)). B&D Models EW411, EW421, EP610 were found to be closely correlated electrically to Weitech 500B (Ref. 4).
   - Efficacy (repellency) not verified through controlled experimentation for Victor Sonic Pest Chaser (Ref. 26).
8. Efficacy tests for cockroaches:
   - Efficacy (repellency) verified through controlled experimentation for Transonic Cix 0600 (Huang 6-02 (Included in Ref. 4 and as Ref. 15)) and Transonic 800 (Ref. 4). B&D Models EW411, EW421, EP610 were found to be closely correlated electrically to Weitech Transonic Cix Heavy Duty and Transonic 800 (Ref. 4). Notable finding and excerpts from Research Report (Ref 15):
     i. Favorable results were more significant when tests were carried out to 15 days vs. 7 days.
     ii. "Ballard et al. (1984) reported ultrasound could repel the German cockroaches in the laboratory tests." p. 3
     iii. "Our results also suggest it is necessary to evaluate the efficacy of ultrasound to control insect pest (sic) in case by case (sic)." p. 10
9. Efficacy tests for spiders:

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- Greenhouse Spider complex: Efficacy (repellency) verified through controlled experimentation for Transonic 800 (report Huang 6-02 (Included in Ref. 4). Models EW411, EW421, EP610 were found to be closely correlated electrically to Transonic 800 (Ref. 4). Notable findings from Research Report:
    i. Experiment was 2 weeks in duration.
    ii. Room sizes for the test were 500 ft^2 and 625ft^2
- Long-bodied cellar spiders: Efficacy (repellency) verified through controlled experimentation for Transonic 100 (report Huang 6-02 (Included in Ref. 4). Models EW411, EW421, EP610 were found to be closely correlated electrically to Transonic 100 (Ref. 4).

10. Efficacy tests for other pests:
    - Norway Rats:
        i. Efficacy (repellency) verified through controlled experimentation for Weitech Transonic Cix Heavy Duty model (report WEI-98009 (included in Ref. 4)). B&D Models EW411, EW421, EP610 were found to be closely correlated electrically to Weitech Transonic Cix 0600 model (Ref. 4).
        ii. Efficacy (repellency) trend verified through controlled experimentation for B&D Model EW425-2P (Ref 25, pp. 4,8); for Victor Sonic Pest Chaser (Ref. 1, p. 8)
    - Major stored product pests (confused flour beetle, Indianmeal moth, red flour beetle, adult rice weevil, sawtoothed grain beetle): Efficacy (repellency) not verified through controlled experimentation (Ref. 5, Ref. 6, Ref. 7, Ref. 8, Ref. 9)
    - Ants (Carpenter ants, *Camponotus festinatus*, *Formica pallidifulva*): Efficacy (repellency) not verified through controlled experimentation (Ref. 10, Ref. 11) and as Ref 16.
    - Flies (Green bottle fly, flesh fly, house fly, blow fly): Efficacy (repellency) not verified through controlled experimentation (Ref. 12)
    - Indian meal moth (adult movement, courtship, and mating behaviors): Efficacy verified through controlled experimentation for Cix 0600 (Ref. 13) and as Ref. 24. B&D Models EW411, EW421, EP610 were found to be closely correlated electrically to Weitech Transonic Cix Heavy Duty model (Ref. 4).
    - House crickets: Efficacy (repellency) verified through controlled experimentation for Cix 0600 and Transonic 800 (Ref. 14). B&D Models EW411, EW421, EP610 were found to be closely correlated electrically to Weitech Transonic Cix Heavy Duty model and Weitech Transonic 800 (Ref. 4).
    - Cat Flea: Efficacy (repellency) not verified through controlled experimentation (Ref. 17) and as Ref. 23.
    - Imperil scorpion: Efficacy (repellency) verified through controlled experimentation for Cix 0600 and Transonic 800 (Ref 18, Ref. 19, respectively). B&D Models EW411, EW421, EP610 were found to be closely correlated electrically to Weitech Transonic Cix Heavy Duty model and Weitech Transonic 800 (Ref. 4).
    - Yellow jackets:
        i. Efficacy (repellency) verified through controlled experimentation for Cix 0600 (Ref. 20) and Transonic 100 (Ref. 22.) B&D Models EW411, EW421, EP610 were found to

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be closely correlated electrically to Weitech Transonic Cix Heavy Duty model and Weitech Transonic 100 (Ref. 4).

ii. Efficacy (repellency) not verified statistically through controlled experimentation for Transonic 800 (Ref. 21).

11. Black & Decker 3 Pack Direct Plug-in Indoor Ex310 Pest Repellers were sold via an Amazon.com web page (Ref. 58). Amazon provides an option for customers to rate the product using their typical (1 star through 5 star) rating system. For this product, Amazon calculates the mean star rating* for responding customers to be 3.3 on the 5 star scale. By adjusting the sorting and filtering options on the site, the following results were obtained:
    - For the 80 of 117 customers who were designated by Amazon as "Verified Purchasers" the rating results are: 34% rated the product as "5 star"; 18% rated the product as "4 star"; 13% rated the product as "3 star"; 9% rated the product as "2 star"; 28% rated the product as "1 star". The ratings were submitted between May 17, 2010 and June 27, 2016.

*copied from the Amazon website: "*Amazon calculates a product's star ratings using a machine learned model instead of a raw data average. The machine learned model takes into account factors including: the age of a review, helpfulness votes by customers and whether the reviews are from verified purchases.*"

OPINIONS

SECTION I: EVALUATION OF APPLICA CONSUMER PRODUCTS, INC RESEARCH REPORTS

1. Based on Finding #4, it is my opinion, that the Model EW406-5P unit that Plaintiff allegedly purchased from the Sam's Club in the Mansfield, OH area (Ref. 28) was closely correlated electrically to the Reference Models that were tested for efficacy (repellency) and reported in Refs. 1-26.
2. Based upon Finding #7, it is my opinion that Applica had sufficient scientific evidence to claim that Model EW406-5P would repel mice when used in accordance with the Use and Care Book.
3. Based upon Finding #8, it is my opinion that Applica had sufficient scientific evidence to claim that Model EW406-5P would repel cockroaches when used in accordance with the Use and Care Book.
4. Based upon Finding #9, it is my opinion that Applica had sufficient scientific evidence to claim that Model EW406-5P would repel spiders when used in accordance with the Use and Care Book.
5. Based upon Finding #10, it is my opinion that Applica had sufficient scientific evidence to claim that Model EW406-5P would repel other pests, i.e., Norway rats, House crickets, Imperil scorpions, and Yellow jackets when used in accordance with the Use and Care Book.
6. Based upon Finding #6, it is my opinion that had Plaintiff's Model EW406-5P (Exhibit Galoski 7-B) been included as one of the "treatments" in the same efficacy tests that the independent laboratories performed (Refs. 1-26) on the Reference Models, its efficacy results would not differ significantly from those of the Reference Models.

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7. Based upon Findings 1-10, it is my opinion that Applica had reasonable basis to conclude that the performance of the B&D New Models, including Model EW406-5P, would mirror that of their Reference models, as tested by various independent laboratories.
8. In my opinion, Finding #11 should be treated as "an extra data point", i.e, not to be given the same scientific weight or value as the controlled experiments cited in Findings #7-#10, but certainly not completely discounted either. Many criticisms of these and other Amazon survey results could be made. If this "data point" were the only data cited to support the efficacy of the product, my opinion would not be the same as stated. But it is not the only "data point" cited. When considered in concert with the other Findings, it brings another dimension to the argument that the B&D Ultrasonic Pest Repeller's claims are justified – at least in the mind of 52% of the customers (34% [5-star] + 18% [4-star]) who were designated as verified purchasers and expressing an end-user consumer perspective.
9. Certain statements made by Dr. Gold in Plaintiff's Expert Witness Report (Ref. 59) and Deposition (Ref. 60) challenge some of the Applica scientific studies on the grounds that there are: a) No controls, b) Low numbers, c) Methods & Materials change between experiments, and d) No replications.
    a. "**No Controls**" in the German cockroach, Greenhouse Spiders, and Long-bodied Cellar Spiders studies that are part of and included in the Correlation Report (Ref. 4).
        i. Regarding the German Cockroach Final Report, dated June 1, 2002, by Huang and Subramanyam: Ref. 60, p 185 ff, Dr. Gold states, *"…they don't have a control – a nontreated control*" and that "*A scientific method basically requires that you have a placebo … because it hasn't completed the basic requirement of having a placebo*" the data generated by the report is not reliable. Dr. Gold misinterpreted the purpose of the test and, therefore, misapplied the definition and usage of "a control" in this advanced experimental design and statistical analysis (i.e., strip split-plot design). The experiment was designed to test movement of the roaches in response to the "ON/OFF" treatments. Roaches were allowed to move freely between the enclosures throughout the test periods to test whether ultrasound, as a treatment, caused them to move. The data were analyzed as "daily change in insect numbers" in each of the two uniform enclosures. Very simply, the control that the researchers employed was to reverse the ON-OFF arrangement before beginning the second test period for each of the replicates. This reversal "Controlled" for any experimental error. By collecting and analyzing the data as daily change in German cockroach numbers for Enclosure 1 and 2 when the Devices were ON or OFF in each, they controlled for experimental error and therefore, met the requirements for a controlled experiment and did not violate the Control/Placebo/Untreated principle associated with the Scientific method as Dr. Gold asserts.
        ii. Regarding the greenhouse spider complex – Transonic 800 Final Report, dated June 1, 2002, by Huang and Subramanyam: In Ref. 60, pp. 192, 194, Dr. Gold

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states, "*Well, first of all, there's not a control in this work*" and "*… Within the same room was another sticky trap that was still in the presence of the ultrasonic, just further away. And in terms of the replications – I think that there were three rooms. In terms of the statistical analysis, that's really not a true control.*" First and foremost, it must be emphasized that the objective of this study was to test the Transonic 800 unit under "natural room conditions". When testing under "natural" conditions, researchers must work with and around whatever conditions, impediments, etc. they encounter. For instance, physical room shape and size cannot be changed, the size of the pest population is what it is, i.e., it may be large, it may be small and to keep with the objective of "natural", such variables are not altered or manipulated. Often times, natural conditions are not "ideal" – as they might be in a laboratory setting. I disagree with Dr. Gold's assertion that there is "No control" based on this statement in the report, "*Another sticky trap was used as a control in the paired test*" (p. 2). In my opinion, the sticky trap at the other end of the room with an inactive unit facing it would be considered, as the researchers claimed, to be the "untreated/placebo" control because there was no ultrasonic sound coming from the inactive Transonic 800 unit facing it. Under the experimental conditions, the individuals of the natural spider population in each room could move freely and had equal opportunity to move to either end of the room and be trapped. There is not enough detail in the report to know the linear distance between the traps so as to substantiate whether Dr. Gold's criticism of "*just further away*" has any scientific merit.

iii. Regarding the Long-bodied cellar spider test – Transonic 100 Final Report, dated June 1, 2002, by Huang and Subramanyam: In Ref. 60, p. 196-197, Dr. Gold states, "*No*" (there was not a control in this test) and "*It doesn't have a true control*". The objective states that the experiment was to be run in "natural room conditions". The statements that I made with respect to the Greenhouse spider experiments being run in natural room conditions apply equally to this experiment. I disagree with Dr. Gold's assertion that there was no control based on the researchers' statement within the Assay procedure section, "*For the untreated rooms (control), there were no ultrasonic units*". They employed a completely randomized experimental design consisting of 10 rooms. Five of those rooms were randomly assigned to the ultrasonic treatment group with the remaining 5 being assigned to the untreated group. The untreated rooms (equal in number to the number of treated rooms) served to control for any experimental error that was present. By controlling for experimental error in this way, the researchers met the requirements for a controlled experiment and did not violate the Control/Placebo/Untreated principle associated with the Scientific method, as Dr. Gold asserts.

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b. "**Low Numbers**" in the Greenhouse Spiders, and Long-bodied Cellar Spiders studies that are part of and included in the Correlation Report (Ref. 4).

i. With regard to Low Numbers in experiments conducted in "natural conditions", a researcher must accept, *a priori*, any consequences associated with the natural conditions. Unlike a German cockroach laboratory test, in which you can artificially infest or pre-populate the test arenas with a known number of cockroaches, experimentation under 'natural conditions" implies that the researcher accepts whatever number of insects are naturally present in the test arenas, be it high or low. It is true that most researchers would opt for large number of insects, if given a choice and all else were equal. Large numbers of individuals facilitates statistical methodology and are "*helpful in discerning the actual results of the treatment*" Ref. 60, p. 198. But large numbers are not necessary for biological testing; nor are they a necessary criterion of the scientific method.

ii. Greenhouse Spiders – Transonic 800. From Ref. 60, pp. 192 and 193, we see an exchange regarding the capture of four spiders plus or minus .58. Dr. Gold states, "*That's the mean response. Plus or minus is the standard deviation and/or variance in the testing*." Regarding another Transonic 800 statistic in the Correlation Report, he states that he "*infers*" that one plus or minus .58 means that one spider was captured plus or minus .58's of a spider. It is true that the raw data are not included in the report. That data would settle the unanswered question as to whether the numbers reported in Table 1 are "# of spiders", or, the "average" number of spiders captured per sticky trap as stated in the Results and Discussion section (p. 2). Since SAS PROC Means was used to analyze the paired data, I believe the numbers are actually "means". If so, we can back-calculate to arrive at the total number of spiders captured during the experiment. An average of 4.00 spiders per inactive sticky trap multiplied by the 3 inactive traps equals 12 total spiders captured in the inactive traps versus an average of 1 spider captured per active trap multiplied by the 3 active traps which equals 3 total spiders captured in the active traps. Altogether, 15 spiders were captured. Twelve were captured where no ultrasound was directed at the trap vs. 3 where ultrasound was directed at the trap. The statistical procedure used discriminated between the treatments, in spite of the low number perception, and showed a significant difference in trap catch at the 5% level.

iii. Regarding the Long-bodied cellar spider test – Transonic 100 Final Report, dated June 1, 2002, by Huang and Subramanyam: I repeat the arguments I made in the previous section challenging Dr. Gold's criticisms of "low numbers" of spiders being present in the natural conditions of the rooms selected as test arenas. There is an additional difference to highlight in these spider tests. The Table 1 title of this research agrees with the Results and Discussion text (unnumbered page). With confidence, we can say that the spider numbers cited

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in the Table and the Results and Discussion section are means. Using the same back-calculation as above, but using 5 traps instead of 3, we get a total of 21 spiders caught in non-ultrasonic rooms versus 7 spiders caught in ultrasonic rooms. Again the statistical test showed a significant difference in the treatments, in fact, with a greater degree of confidence ($P<0.01$) than for the greenhouse spiders.

c. **Methods and Materials change between experiments**. In Ref. 60, pp. 187-189, Dr. Gold takes issue with the fact that the researchers changed the methods for testing the response of German cockroaches to Transonic 800 from the first tests in 2000 to the follow-up tests reported in 2002 (Ref. 4) – and by so doing, calls into question the reliability of the 2002 results. In fact, a significant feature of the scientific method is repetition and iteration. As knowledge is gained, it is expected, under the scientific method that methods and materials are changed to account for newly gained knowledge. The results of the 2002 experiments with Transonic 800 cannot be called into question simply because the location of the ultrasonic unit was changed from a corner of the enclosure to the top center of the enclosure. Such a warranted change is in accordance with basic scientific methodology tenets. As far as Dr. Gold's criticism that the top center placement doesn't represent how the end user would use the product – it must be pointed out that this was a laboratory experiment, not an experiment in a natural or end-user's environment. The researchers make no claim that their laboratory setup was intended to represent the placement of a unit in an end-user's environment.

d. **No Replications**. In Ref. 60, pp. 186-187, Dr. Gold addresses the critical importance of "replications" when performing research and treating the results with statistical tests. His criticisms are directed at the testing of ultrasonic Sunbeam and Lentek devices. Were the Galoski case focused upon Sunbeam and/or Lentek devices, I would consider his criticism valid. However, the Galoski case is focused upon Weitech, Applica and Black & Decker branded ultrasonic devices. So, if we look at the research reports included in the Correlation Report (Ref. 4) we see that for the German cockroach tests, those for Cix 0600 at "A and Quiet" and Transonic 800 were replicated three times, those for Cix 0600 at "A and Loud" were replicated two times. The testing of Transonic 800 on a greenhouse spider complex employed three replications. The testing of Transonic 100 on Long-bodied cellar spiders employed five replications. Since the researchers used the power of replication in all the aforementioned studies, we can deduce, using Dr. Gold's logic and phraseology (p. 187) that their statistical analyses as presented in the Correlation Report are "*meaningful, active, and would reflect the outcome*".

10. I call attention to Ref. 60, pp. 190-191, where we find Dr. Gold's discussion and explanation of the electrical characteristics of ultrasonic devices. This brief discussion demonstrates that Dr. Gold is confused and mistaken on the terminology and workings of an ultrasonic unit. He states that "*hertz … is a measure of how loud it is …*". He is mistaken. In fact, hertz is a measure of the

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frequency of a sound, not the loudness of a sound. Frequency determines the pitch or tone of a sound. He seems to equate hertz and decibel SPL, when he corrects himself, "*And then, again, this is a fairly low value. Excuse me. 88 was considerably higher because it's a logarithmic scale than the Black & Decker units*." In fact, a decibel is a unit of measurement that indicates the loudness of a sound – and associated with Sound Pressure Level (SPL).

SECTION II: CRITIQUE OF PLAINTIFF'S EXPERT WITNESS DISCLOSURE AND DEPOSITION

11. It is widely known and understood within the global researching scientific community that the "scientific method" is the standard process by which all research and experimentation is compared before being generally accepted as "valid" and worthy of publication in peer reviewed journals. There are six main steps to the method: a) Ask a question, b) Do background research, c) Construct a hypothesis, d) Test your hypothesis by doing an experiment, e) Analyze your data and draw a conclusion, and f) Communicate your results. My critique of Plaintiff's Expert Witness testimony is organized according to the six universal steps of the scientific method.
    a. **Ask a question**.
        i. Probably, the simplest and most appropriate question for the Plaintiff's Expert Witness to ask in this case is: "Does the product perform as the manufacturer claims?" We don't read in any of Dr. Gold's testimony that he began his expert witness task/role by asking a simple, unbiased, question such as this.
    b. **Do background research**.
        i. In his Disclosure, Dr. Gold cites nine research articles summarizing research that was conducted on ultrasonic devices (Refs. 36-44). Upon closer inspection of those references we find that all have a publication date between 1982-1995, two are on an electromagnetic device (Refs. 40 & 44), one was an unpublished manuscript on microwave technology (Ref. 43), and one was apparently published in a Trade Magazine that could not be produced (Ref. 36). If we disqualify those articles from the list, we're left with five peer reviewed published articles, the most recent of which was published in 1989, 28 years ago (Ref. 39). This background research cited by Dr. Gold to support his opinions and conclusion is based on decades-old ultrasonic technology. It is my opinion that without testing the actual Galoski devices, other Applica products, or any functionally similar ultrasonic technologies commercially available since 1984 his thinking is confounded with a historic age-factor bias.
        ii. Background research usually includes review of all relevant previous research and published articles; Dr. Gold testifies that he reviewed Refs. 1-44 in preparation for the case. In my opinion, the historic bias that he seems to have developed while actively researching the efficacy of ultrasonic device technologies of the 1980's on German cockroaches overshadowed his obligation to remain unbiased and objective while reviewing Refs. 1-32. My opinion is

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based on the bias that is apparent in the tenor of his overly broad and generalized assessment of Applica's Correlation Report, "*Almost all of the work that was done in these files on the various pests is invalid data*" (Ref. 60, p. 202).

iii. Included in background research is Ref. 38. In 1984 Dr. Gold and his co-authors write, "*The results of these experiments suggest that B. germanica activity was increased by the ultrasound-emitting unit … The use of ultrasound in these experiments resulted in a statistically significant increase (P≤ 0.10) in activity by the German cockroach population.*" While he concludes in this peer reviewed research paper and restates in his Deposition (Ref. 60, p. 105) that ultrasound-emitting devices increase German cockroach activity, I count at least nine times in his Deposition where he claims the opposite, that ultrasonic pest repellers do not work, e.g., "*no they do not work at all* (p. 49); *I know that they do not work* (p. 49); *it doesn't matter if you put multiple units in there, they don't work* (p. 51); *I don't know* [why it says it may take up to two weeks to see results] *because they don't work* (p. 55); [you're saying it doesn't matter because they don't work?] *that is correct* (p. 67); *No. it still won't work* (p. 67); *So, it wouldn't change my expectations which are for zero control (p. 68)*; *Because they don't work* (p. 88); *I know they don't work* (p. 167)". In my opinion, increased insect pest activity is a demonstration that an ultrasonic device is indeed causing an effect on pest behavior and by definition is "working".

iv. Two of the overall conclusions in Background Research Ref. 2 are "*The effectiveness of devices against arthropod pests cannot be ascertained without testing specific ultrasonic units*" and "*Effectiveness varies with the protocol used*". In Background Research Ref. 42, Koehler, et al. report that the "*quality of sound is different for each device*". Since Dr. Gold reviewed these references in preparation for his disclosure and then restates in his deposition that differences exist (Ref. 60, p. 115), these statements should have led Dr. Gold to withhold opinions on the Galoski units until he personally tested them in one of his controlled experimental protocols.

c. **Construct a hypothesis**. From his description and explanation of hypothesis testing (Ref. 60, pp 58-61), Dr. Gold demonstrates an understanding and appreciation for why this step is part of the scientific method. He states that he did not conduct any research on the Galoski devices and only "*looked at summaries of the data*" (Ref. 60, p. 61). He did not construct a valid null hypothesis statement(s) against which results could be analyzed using accepted statistical methods. Instead, he chose to use the words "*don't work*" (See Opinion 11(b)(ii)) as his hypothesis and conclusion.

d. **Test your hypothesis by doing an experiment**.

i. As mentioned above, Dr. Gold responded at least nine times throughout his deposition that ultrasonic pest repellers "*don't work*" (Ref. 60). Not only are the "*don't work*" hypotheses inadequately constructed for hypothesis testing, he

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further states that he made no effort to experimentally test any of the Galoski devices upon which he has testified (Ref. 60, p. 60).

ii. The written material included with the Plaintiff's ultrasonic pest repeller, B&D Model EW 406-5P, claims to repel "*mice, cockroaches, spiders and other pests*" (Ref. 28). The relevant research that Dr. Gold cites in his Disclosure as his own was on the German cockroach and the American cockroach (Ref. 37-39, 41). He has not cited research on mice, spiders or other pests, nor does he claim expertise on those pests. Therefore, his conclusions and claims that ultrasonic devices "don't work" are misleading and wholly invalid. Dr. Gold states in his Disclosure, "*While the scientific method is rigorous, expensive and sometimes difficult to complete, it is the only way that "truth" can be determined, and that Type 1 and Type 2 errors in the hypothesis testing protocols are avoided. Mere observations, or extrapolations from invalid data are not considered acceptable by the scientific community or regulatory agencies*." (Ref. 59, pp 5-6). He took a shortcut within the "rigorous, expensive and sometimes difficult to complete" scientific method by skipping over the essential step of experimentation. In addition, for species-specific reasons it is scientifically risky to extrapolate from the two cockroach species which he researched to the "*500*"different cockroach species mentioned in his deposition, among them the "*Oriental and Brown-banded cockroach*" (Ref. 60, p. 8)". In addition, the duration of the testing that he did perform with German cockroaches in the 1980's never exceeded 7-days. We find the statement, "*It may take up to 2 weeks to see results*" in the How to Use section of the Use and Care Book (Ref. 28, Exhibit Galoski No. 9). This is yet another reason to discount any extrapolation from Dr. Gold's German cockroach tests to any of the pests claimed on Ms. Galoski's ultrasonic pest repeller package.

iii. Certain of the 1980's ultrasonic devices that Dr. Gold cited in his Disclosure could be described as having "sweeping frequency" technology (Ref. 37, 38, 41, 42). Ms. Galoski's ultrasonic devices are based upon sweeping frequency technology (Refs. 4, 47). Dr. Gold does not supply experimental research results that test the null hypothesis: no significant difference between his 1980's units and the 2010's B&D units. Without that experimental evidence we can neither accept nor reject the null hypothesis and are left with an unanswered question because he did not complete this step of the scientific method.

iv. B&D Model 421 contains a green night light consisting of two LED's joined by a light pipe that will illuminate evenly and a night light switch (Ref. 47, pp. 3, 7). In his Disclosure, Dr. Gold raises the challenge that Applica's reconstruction and inclusion of a night light in the B&D model potentially attracts insect pests (Ref. 59, p. 6-7). In his Deposition, he agrees that this challenge is really a hypothesis (Ref. 60, p. 82) and it is a hypothesis that should have been tested by an expert

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witness. But, yet, it's another example of experimental absence as Dr. Gold skipped over this step, shortcutting the scientific method.

v. In short, he did not perform the experiments as required in the scientific methodology process to either test his hypotheses or to draw valid conclusions on the efficacy of Ms. Galoski's ultrasonic devices on the pests claimed, i.e., mice, cockroaches, spiders, other pests.

e. **Analyze your data and draw a conclusion**.

i. Dr. Gold did not collect data in this case, so there were no original data to analyze. He states that he only "*reviewed the data set that resulted from research which is associated with the case*." (Ref. 60, p. 60).

f. **Communicate your results**.

i. All but one of Dr. Gold's referenced research papers of the 1980's on German and American cockroaches was peer reviewed and published in reputable entomological journals. This research and other points made in his CV support that he is an expert on cockroach management. For the purposes of this case, his expertise in cockroach management is irrelevant, in my opinion. I base this opinion on Ms. Galoski's description and statement of the types of pests that she has seen in her house, "*... spiders, the flies, the fruit flies, the ladybugs. No cockroaches though. I would have left the house if I would have seen a cockroach*" (Ref. 28, p. 197).

SECTION III: ASSESSMENT OF PLAINTIFF'S COMPLIANCE WITH USE INSTRUCTIONS

12. It is incumbent upon the purchaser of a product to read, comprehend, and follow the manufacturer's accompanying literature before using that product. Accompanying literature includes any and all written/graphic material, and is not limited to product packaging, package inserts, and writing on the unit itself. Failure to read, comprehend and comply with the accompanying literature may result in: safety infractions, unnecessary hazard/risk, product destruction/failure, product performance issues, among other easily-avoided occurrences. It is my opinion that a manufacturer can reasonably expect that its customers will read and use its product in accordance with accompanying literature, including the labelling and use directions. The Plaintiff in this case has no basis upon which to claim product failure of the Black & Decker ultrasonic units, in light of her admission that she did not read all accompanying product literature, most importantly, the package insert (Ref. 28, pp. 99, 116, 173), which has the bolded, upper case instruction, "**PLEASE READ AND SAVE THIS USE AND CARE BOOK**" (Ref. 28, Galoski Exhibits No. 9 and No. 10) as the first line following the title. Careful comparison between the Use and Care Book and the Plaintiff's statements expose even more discrepancies or Plaintiff oversights that have bearing on her non-performance allegation:

a. "**Multiple units may be necessary for larger rooms**". The Plaintiff states that she "*doesn't have any large rooms*" (Ref. 28, p. 166) implying that all rooms in her house are small or medium in size. She purchased Black & Decker Model EW406-5P, the package

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of which contains three different Black & Decker Models, e.g., EW-411, EW-421, and EP-610. EW-411 and EW-421 each covers an average room, ca. 12.5' x 12.5'; EP-610 covers a large room, ca. 15' x 15' (Ref. 47). Without knowing the size of Plaintiff's rooms and which models were installed in which rooms, there is no way to substantiate that she doesn't have any large rooms as defined in Ref. 47, or whether the appropriate model was installed in them.

b. "**Operate the unit 24 hrs a day, occasionally moving the unit to a different location as necessary**" Plaintiff admits that she did not follow this "How to Use" instruction in the deposition exchange, "Q *Have you at any time moved the devices from one outlet in a room to another outlet in the room*? A *No*". (Ref. 28, p. 143). A second time, on page 168, Plaintiff admits that she did not follow this instruction, "*Q "... occasionally moving the unit to a different location as necessary." Did you follow that instruction and move the units to different locations? A As necessary, no. I left them where I originally plugged them in.*" The manufacturer clearly and specifically states how the product should be used in the section entitled, "How to Use" and just as clearly, the Plaintiff admits that she did not use the product as instructed.

c. "**For best results, place additional units in adjacent rooms and on each level of the dwelling, moving the unit to a different location as necessary**" The Plaintiff purchased a package containing five units to place within her house. She placed one unit (unknown Model numbers) in each of these rooms: living room, dining room, kitchen, bathroom and basement (Ref. 28, p. 127). By deduction, I conclude that she did not place a unit in the 1st floor bedroom or the utility room – both by definition are "adjacent rooms". She states multiple times that she did not install any units in the rooms on the 2nd floor of the house (Ref. 28, p. 140, p. 169). By virtue of not complying with this "How to Use Note" she knowingly or unknowingly accepted that she would not get "best results".

d. "**Operate the unit 24 hours a day ..." and "... place additional units in adjacent rooms**" I intentionally repeat these instructions to point out that when Plaintiff "*unplugged* (the unit in the living room)" (Ref. 28, p. 137) she simultaneously disregarded both of these instructions. Obviously, she caused the unplugged unit to not operate 24 hours a day. Less obvious, in so doing, she created yet another void in the pattern/coverage of ultrasonic sounds on the 1st floor. She admits to having three adjacent rooms without an operating unit: 1st floor bedroom, utility room, and living room.

SUMMARY

It is my opinion that based upon the independent laboratory efficacy testing that I have reviewed in connection with Applica's Black & Decker Ultrasonic Pest Repellers, Applica had reasonable basis to conclude that their products would repel mice, cockroaches, spiders and other pests when used in accordance with the Use and Care Book that was part of the packaging.

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After a careful review of Dr. Gold's Disclosure and Deposition testimony, *in toto*, I opine that he did not employ the universally accepted scientific method to reach or support his conclusions. It is my firm belief that results from German cockroach efficacy research using decades-old ultrasonic devices should not be considered as a valid substitute for efficacy research on the actual B&D Model 406-5P device and scientifically tested in accordance with its Use and Care book instructions and for all the pests claimed on the packaging.

Based upon Ms. Galoski's deposition testimony, I opine that she did not use the B&D Model 406-5P ultrasonic pest repeller in accordance with the manufacturer's use instructions, as provided in the Use and Care book.

Without acceptable experimental research to prove otherwise, and with the fact that the devices were not used in accordance with the instructions, I do not believe that the Plaintiff's argument of non-performance prevails in this case.

These opinions are based on the information provided to me, thus far. I hold these opinions to be true to a reasonable level of certainty based on my education and experience in the field of entomology and research and development of over 35 years. As additional information is presented, or facts are uncovered, my opinions may change depending on the facts presented.

Dated: January 12, 2017

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